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Product Name :
Computerized Emissivity Measurement Apparatus

Product Code :
SCHOOL-MAS850001



Description :

Computerized Emissivity Measurement Apparatus

Technical Specification :

The Computerized Emissivity Measurement Apparatus offers basic experiments for targeted teaching on the topic of heat transfer by radiation. At the heart of the experimental unit is a metallic sample heated by a concentrated light beam. The light beam is generated by a continuously adjustable halogen lamp and a parabolic reflector. The reflector concentrates the radiation to a focal point. A sample is placed on a thermocouple located at the focal point. The thermal radiation emitted by the sample is measured by a thermopile. In order to be able to measure the radiation at different distances, the thermopile is mounted on a moveable carriage. Heat radiation is one of the three basic forms of heat transfer. In radiation the heat transfer takes place via electromagnetic waves. Unlike heat conduction and convection, heat radiation can also propagate in a vacuum. Heat radiation is not bound to a material. The microprocessor-based instrumentation is well protected in the housing. With explanatory texts and illustrations the educational software significantly aids the understanding of the theoretical principles. The software for system operation and for data acquisition and educational software. The unit is connected to the PC via USB. FEATURES: Effect of different surfaces on heat transfer by radiation Functions educational software, data acquisition, system operation Fundamentals of heat transfer Study transient behavior Create power balances Verify Lambert's inverse-square law Verify Stefan-Boltzmann law Verify Kirchhoff's law SPECIFICATION: Halogen lamp : Electrical power: 150W Max. Temperature: approx. 560°C Aluminum samples, Ø 20mm 1x matt anodized on both sides 1x painted on both sides (high-temperature paint) 1x matt anodized with one painted side Copper samples, Ø 20mm 1x nickel-plated 1x heavily oxidized Steel sample, Ø 20mm 1x heavily oxidized Measuring ranges : Temperature: 0...780°C Radiation intensity: 0...1250W/m² Required for Operation : 230V, 50Hz, 1 phase 230V, 60Hz, 1 phase;

120V, 60Hz, 1 phase

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